

## REMARKS

By way of the present response, claims 1-24 are amended and new claims 25-30 are added. Upon entry of these amendments, claims 1-30 shall be pending for consideration, of which claims 1, 7 and 17 are independent. Applicant respectfully requests reconsideration and allowance of all the pending claims.

With respect to independent claims 1, 7 and 17, the present amendments remove the features recited in each of these independent claims related to a gate insulating film being an organic resin. Dependent claims 6, 12, and 22 are amended to include the language removed of each of independent claims 1, 7 and 17. Each of claims 2-5, 8-11, 13-16, 18-21 and 23-24 are amended to improve readability by providing explicit reference to a “semiconductor device,” as set forth in the preambles of the independent claims. Claim 9 is further amended to correct a minor typographical error with the recited formula. New claims 25-30 find support in the specification, at page 5, lines 8-11, for example.

Page 2 of the Office Action includes a rejection of claims 1-16 under 35 U.S.C. 103 as allegedly being unpatentable over Yamazaki et al. (EP Patent No. 0 485 233, hereinafter “Yamazaki et al. ‘233”) in view of Kim et al. (U.S. Patent No. 6,100,954). This rejection is respectfully traversed, as neither the Yamazaki et al. ‘233 document nor the Kim et al. patent, whether considered individually or in any combination, teach or suggest each and every feature set forth in the combinations recited in independent claim 1 and 7.

For instance, independent claim 1 recites, among other features, that an impurity concentration in an interface between the first insulating film and the second insulating film is higher than an impurity concentration in an interface between the second insulating film and the channel region. Similar distinctions are set forth in independent claim 7. In connection with these claimed features, the Examiner asserts that Figure 11A of the Yamazaki et al. ‘233 document shows a multi-layer SiO<sub>2</sub> film 32 including a first insulating film (i.e., layer 32a) and a second insulating film (i.e., layer item 32b). However, while page 11, lines 19-39 of Yamazaki et al. ‘233 describes doping phosphorus or a halogen element in one of the two insulating films to neutralize alkali ions diffusing from the substrate in the Figure 11A embodiment, Yamazaki et al. ‘233 does not mention any particulars with regard to an impurity concentration *in an interface* between the layer 32a and layer 32b, and between the layer 32b and the channel (i.e., region 28), much less that an impurity

concentration in an interface between the layers 32a and 32b is higher than an impurity concentration at an interface between the layer 32b and the channel region 28 . Hence, Yamazaki et al. ‘233 does not teach or suggest the features of “an impurity concentration in an interface . . . ,” as recited in independent claim 1, and similar features set forth in independent claim 7.

The Kim et al. patent does not make up for the shortcomings of the Yamazaki et al. ‘233 document pointed out above. For instance, Kim et al., which is relied upon for teaching an organic film formed between a gate electrode and a channel region, also does not disclose or suggest that “an impurity concentration in an interface between said first insulating film and said second insulating film is higher than an impurity concentration in an interface between said second insulating film and said channel region” as recited in each of independent claims 1 and 7.

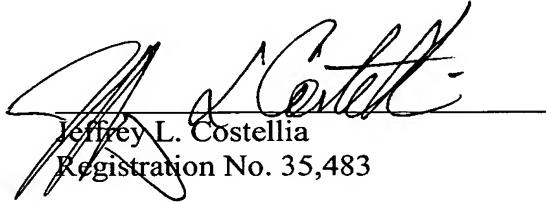
Even if one were to consider *arguendo* that one of ordinary skill in the art would have been motivated to modify the device of Yamazaki et al. ‘233 to include the organic insulator taught in Kim et al., such hypothetical combination would not have resulted in the combinations of specific features set forth in claims 1 and 7. Hence, the proposed combination of Yamazaki et al. ‘233 and Kim et al. would not establish a *prima facie* case of obviousness for these claims. Accordingly, independent claims 1 and 7 are allowable.

The Office Action also includes a rejection of claims 17-24 under 35 U.S.C. § 103 as allegedly being obvious over the Yamazaki et al. ‘233 document in view of Yamazaki et al. (Japanese Patent No. 06-296023, hereinafter “Yamazaki et al. ‘023”) and the Kim et al. patent. However, independent claim 17 recites *inter alia* that “an impurity concentration in an interface between said first insulating film and said second insulating film is higher than an impurity concentration in an interface between said second insulating film and said channel region.” As pointed out above, the neither the Yamazaki et al. ‘233 document nor the Kim et al. patent teach or suggest such features. It is respectfully submitted that the Yamazaki et al. ‘023 patent also does not appear to teach or suggest features relating to “an impurity concentration in an interface . . . .” Hence, Applicant submits that no combination of the Yamazaki et al. ‘233, Kim et al. and Yamazaki et al. ‘023 documents would have led one of ordinary skill in the art to the claimed combination of specific features set forth in claim 17. As such, claim 17 is allowable.

The remaining claims 2-6, 8-16 and 18-30 depend from one of independent claims 1, 7 and 17, and therefore are allowable at least for the reasons pointed out above and further for the additional features recited.

In light of the foregoing, Applicant respectfully requests reconsideration and withdrawal of all the pending rejections. While the present application is believed to be in condition for allowance, the Examiner is invited to contact the undersigned at the number provided below if he believes a telephonic discussion may serve to resolve any residual issues.

Respectfully submitted,



Jeffrey L. Costellia  
Registration No. 35,483

NIXON PEABODY LLP  
Suite 900, 401 9<sup>th</sup> Street, N.W.  
Washington, D.C. 20004-2128  
(202) 585-8000  
JLC/JFG